

Date: Tue, 21 Jun 94 18:32:57 PDT
From: Info-Hams Mailing List and Newsgroup <info-hams@ucsd.edu>
Errors-To: Info-Hams-Errors@UCSD.Edu
Reply-To: Info-Hams@UCSD.Edu
Precedence: Bulk
Subject: Info-Hams Digest V94 #689
To: Info-Hams

Info-Hams Digest Tue, 21 Jun 94 Volume 94 : Issue 689

Today's Topics:

 Amateur radio related Windows wallpaper?
 Collecting Radio Operator Plates
 FORUM
 Ham Radio in WA State
 Kenwood Tech Line
 Railroad track as an antenna?
 Sign me up!
 Talk to the Senator (Goldwater)
 Tunnel Radio Help Request
 VHF/UHF Propagation Prediction
 Where to buy equipment in Far East ??
 You know its time to retire from the hobby when ...
 You know its time to retire from the hobby when....

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Tue, 21 Jun 1994 18:39:54 GMT
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!news.moneng.mei.com!uwm.edu!
mixcom.com!kevin.jessup@network.ucsd.edu
Subject: Amateur radio related Windows wallpaper?
To: info-hams@ucsd.edu

Does anyone have any computer art/photographs of amateur radio related
scenes?

GIF or BMP files of a nice antenna layout at sunset comes to mind.

You know, something that would make for good Windows wallpaper. 73.

--

| | | | |
|-------|-------------------------------|--|-----------------------|
| /`- _ | kevin.jessup@mixcom.com | | Vote Libertarian! |
| { | } | | |
| \ | / | | Call 1-800-682-1776 |
| __* | N9SQB @ WA9POV.#MKE.WI.USA.NA | | for more information. |

Date: 21 Jun 1994 16:03:03 -0500
From: ihnp4.ucsd.edu!swrinde!howland.reston.ans.net!europa.eng.gtefsd.com!
sundog.tiac.net!news.sprintlink.net!bga.com!bga.com!nobody@network.ucsd.edu
Subject: Collecting Radio Operator Plates
To: info-hams@ucsd.edu

I am starting a collection of Ham Radio License Plates. I would like to collect all 50 states and as many countries as possible. Old calls are fine. My funds are limited but would be willing to pay postage.

If you have a License Plate sitting around please feel free to add it to my new collection.

Bob Redoutey - KF5KF
2225 Jasmine Path
Round Rock, TX 78664-7148

Thanks for all the help.

Bob - KF5KF
redoutey@bga.com

--

Bob Redoutey - Austin, TX
Amateur Radio KF5KF
redoutey@bga.com

Date: 21 Jun 94 21:00:00 GMT
From: news-mail-gateway@ucsd.edu
Subject: FORUM
To: info-hams@ucsd.edu

NEEDED: I AM IN DESPERATE NEED OF A REPLACEMENT "SQUIRREL CAGE" TYPE COOLING FAN FOR A DRAKE L4B AMPLIFIER, WHICH IS NOT AVAILABLE FROM DRAKE. IT MEASURES 2 AND 11/16 INCH IN DIAMETER AND 1 AND 1/4 INCH IN THICKNESS

WITH A SHAFT OPENING OF 1/4 INCH WITH A CLOCKWISE ROTATION. THE ONE I HAVE WAS MANUFACTURED BY "THE TORRINGTON MFG CO" WITH THE MARKINGS OF "GA 216-108-1". THE ADDRESS AND/OR PHONE NUMBER OF "THE TORRINGTON MFG CO" WOULD BE HELPFUL. ANY KNOWLEDGE OF A REPLACEMENT FOR THIS FAN WOULD BE GREATLY APPRECIATED.

E-MAIL- MINOR,LARRY@BILOXI,MS
LARRY MINOR- WB4DYF-119-P
VAOPC, PENSACOLA, FL
(C) 904-479-6647
(FTS) 946-6647

Date: Tue, 21 Jun 1994 13:27:27
From: pa.dec.com!ntguru.zso.dec.com!mcleman@decwrl.dec.com
Subject: Ham Radio in WA State
To: info-hams@ucsd.edu

In article <rogjdCrr6uG.AFG@netcom.com> rogjd@netcom.com (Roger Buffington) writes:
>Newsgroups: rec.radio.amateur.misc
>Path: pa.dec.com!decwrl!ames!lll-winken.llnl.gov!overload.lbl.gov!dog.ee.lbl.gov!ihnp4.ucsd.edu!library.ucla.edu!csulb.edu!csus.edu!netcom.com!rogjd
>From: rogjd@netcom.com (Roger Buffington)
>Subject: Re: Ham Radio in WA State
>Message-ID: <rogjdCrr6uG.AFG@netcom.com>
>Organization: NETCOM On-line Communication Services (408 261-4700 guest)
>X-Newsreader: TIN [version 1.2 PL1]
>References: <2u42b3\$pt2@gdls.com>
>Distribution: usa
>Date: Tue, 21 Jun 1994 15:25:25 GMT
>Lines: 31

>Bill Turini (turini@gdls.com) wrote:
>: I'm relocating to Washington (Enumclaw area) and I'd like to correspond
>: with someone in Washington about the state of ham radio there.

>: I noticed from a quick look in the repeater directory that there seems to
>: be a significantly greater number of 440 repeaters in the state than 2
>: meters. Is this the case?

>: Also, if someone knows of a ham radio club in the area I'd really
>: appreciate it.

>: The ham license plates has been covered here, thanks.

>: Anything else would be appreciated.

>I don't live in Washington State (though I'd like to! :)) but I did
>motor thru the state with my HT last year.

>Lots of 2 meter and 440 repeaters. Many are linked every which way to
>every which band, such that you may be in eastern Washington talking to
>someone in Seattle, on 2 meters, and find out that he is coming thru a 440
>or 1.2 gig gateway.

>A nice system, actually, and the people were quite friendly. Some of the
>local repeaters were a bit provincial, but that's true most places, I
>'spose.

>--

> rogjd@netcom.com
> Glendale, CA
> AB6WR

Your mostly talking about the Evergreen Intertie. It is a nice system that
links Oregon, Washington, Idaho, Montana up together. It's only problem is it
is not a long QSO system. 2 minutes MAX. Lots of breaks. All the new commers
end up there, because most people are willing to talk to them, unlike some of
the local no-interlinked machines.

I myself stay on 440 and 1.2 Ghz. 2 meters is kinda boring here.

Jeff
Redmond, Wa.
KD1IT /7

Date: 21 Jun 94 15:21:41 -0600
From: ihnp4.ucsd.edu!swrinde!howland.reston.ans.net!darwin.sura.net!
atlas.tntech.edu!bdy5049@network.ucsd.edu
Subject: Kenwood Tech Line
To: info-hams@ucsd.edu

Does anyone have the number for Kenwood Technical Support or know where I can
find a service manual for a TS440S.

73
Bryan, KD4IIC

--

Bryan D. Young, KD4IIC
TTU Box 9312
Cookeville, TN 38505
Department of Electrical Engineering DWMCC Helpdesk Expert

AT&T Net: (615)372-4075
Internet: bdy5049@tntech.edu
Packet: kd4iic@wa4uce.#midtn.tn.usa

Date: 21 Jun 1994 18:42:06 GMT
From: ihnp4.ucsd.edu!swrinde!gatech!taco.cc.ncsu.edu!straylight.acs.ncsu.edu!
nsyslaw@network.ucsd.edu
Subject: Railroad track as an antenna?
To: info-hams@ucsd.edu

Nick Stefanisko (stefanis@ptp.hp.com) wrote:
: STORM JAMES (s9898198@sandcastle.cosc.brocku.ca) wrote:
: : I have heard a legend that a college radio station (either at MIT, Tufts,
: : or Swarthmore) welded antenna to railroad tracks, and peeved the FCC by
: : broadcasting nationwide. Is this true? If anyone knows, please email me
: : (or post here) If you do know, could you please direct me to some
: : documentation regarding this legend if you can.
: :

: Humm, I wonder what the resistance of the transcontinental railroad is.

When I first saw this subject, my first thought was H0 scale model
railroad track.

Now I'm wondering what the impedance of Nickel Silver, H0 gauge track
is... Looks awfully close to ladder line. (about 1.25 inch separation
between conductors, now what about that nickel-silver stuff...?)

Methinks I see a new J-Pole experiment in the future...

--

| | |
|---|-----------------------|
| Lou Williams (nsyslaw@acs.ncsu.edu) | aka: KE4ARM |
| Unix Systems Programmer | Phone: (919) 515-2794 |
| NCSSU Administrative Computing Services | FAX: (919) 515-3787 |

URL: <http://www.acs.ncsu.edu/~nsyslaw>

Date: Tue, 21 Jun 1994 18:49:34 GMT
From: ihnp4.ucsd.edu!library.ucla.edu!csulb.edu!csus.edu!netcom.com!
n1gak@network.ucsd.edu
Subject: Sign me up!

To: info-hams@ucsd.edu

In article <94062021330820@pcappbbs.com>,
Mike Conti <mike.conti@pcappbbs.com> wrote:

>
>Hey Ron,
> How are you doing? I now have an address that works! So you and
>your buddy Hugh can send me more mail.
>
>.
>.
>.
>
> Anyway, that's it from here. I glad that this Internet thing is
>working. This will be alot of fun. I will look forward to hearing from
>you soon. You guys take care and have a good one.
>
>Later,
>
>MIKEY
>MIKE.CONTI@PCAPPBBS.COM

Boy - it's a good thing Mike didn't confide to Ron that he was having
an affiar, or was in debt to the IRS. You never know WHO's gonna read
something the way this Internet thing works.

Date: Tue, 21 Jun 1994 11:10:15
From: ihnp4.ucsd.edu!library.ucla.edu!europa.eng.gtefsd.com!sundog.tiac.net!
news.sprintlink.net!indirect.com!s146.phxslip.indirect.com!
lenwink@network.ucsd.edu
Subject: Talk to the Senator (Goldwater)
To: info-hams@ucsd.edu

This Sunday, June 26th, 1994, Barry Goldwater, K7UGA, will be the
special guest on the Ham Radio & More show. The show airs at 6:00pm
EST on the Talk America Network. It is available in 23 cities and also
via satellite on spacenet 3, transponder 9, 6.8 audio. For a complete
list of stations, look at past posts or call 1-602-241-1510.

Senator Goldwater will be taking listener calls throughout the show.

73,

Len, KB7LPW

Date: 21 Jun 1994 16:04:59 -0600

From: ihnp4.ucsd.edu!galaxy.ucr.edu!library.ucla.edu!europa.eng.gtefsd.com!gatech!nntp.msstate.edu!olivea!spool.mu.edu!mnemosyne.cs.du.edu!nyx10.cs.du.edu!not-for-mail@network.ucsd.edu

Subject: Tunnel Radio Help Request

To: info-hams@ucsd.edu

I have a work project and I am looking for someone with some real world experience and/or advice in sending RF through underground tunnels.

The problem is to provide safety communications during a water conduit tunnel inspection trip - which only happens once every 10 years. The problem constraints are:

- > need a temporary installation, easily installed and removed
- > must provide two-way voice communications
- > work reliably over a distance of 23 miles (37 km), through a damp, round, concrete lined tunnel, approx. 10 ft. (3.5 meters) in diameter
- > the tunnel is mostly a straight line, with a single 30 degree horizontal bend, about 9 miles (14 km) from one end
- > there is a source of 12 volt D.C. power on a motorized tunnel inspection vehicle

Experimentation has shown:

- > using 100 watts of F.M. at 48.5 MHz, propagation is only about 150 feet (50 meters) with a loaded 1/4 wave whip mounted on the cart
- > using 50 watts of F.M. at 450 MHz, propagation is up to 1500 feet (500 meters) with 4 element Yagi antennas on both ends
- > in both of these field tests, the received power drops off suddenly at the stated distances

I guess that some form of "lossy" waveguide theory is needed to figure this all out properly...but I'm not into a graduate research program. I need a practical, proven, method now.

I am considering going to higher frequencies (microwave) or even trying some scheme using modulated laser light links.

Is there anyone out there who has actually done tunnel radio, or who knows of commercial mine or tunnel radio equipment that will work?

Note: installing "leaky coax" is not acceptable. It is too costly, time consuming, and it must be removed each time after the inspection is done.

Thanks for any help you can give.

Bill Hester

whester@nyx.cs.du.edu

--

Bill Hester, Ham Radio N0LAJ, Denver CO., USA - N0LAJ@W0LJF.#NECO.CO.USA.NOAM

Please route replies to: whester@nyx.cs.du.edu or uunet!nyx!whester

Public Access Unix @ University of Denver, Denver Colorado USA

(no official affiliation with the above university)

Date: Mon, 20 Jun 94 15:22:54 PDT

From: ihnp4.ucsd.edu!swrinde!cs.utexas.edu!howland.reston.ans.net!torn!

news.unb.ca!nbt.nbnet.nb.ca!news@network.ucsd.edu

Subject: VHF/UHF Propagation Prediction

To: info-hams@ucsd.edu

I've been working on a windows based program to do simple pathloss predictions for VHF/UHF links. The program is still in a testing phase, but I would be willing to release it to a few select individuals that would be willing to test it against real, or other programs. Since there is no rec.radio.amateur.binary group, I will email direct to those select few. Let me know how you intend on testing it, and promise to send back your results and its yours.....

Roger J. Thompson

rthompsn@nbnet.nb.ca

VE9RI

Date: Tue, 21 Jun 1994 15:53:16 GMT

From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!darwin.sura.net!

fconvx.ncifcrf.gov!mack@network.ucsd.edu

Subject: Where to buy equipment in Far East ??

To: info-hams@ucsd.edu

In article <tomrune-210694133816@193.156.105.53> tomrune@mac_inge.itek.norut.no (Tom Rune Lauknes) writes:

>Hi!

>Thanks for reading this message.

>I am going to the Far East in my summer holiday, and I want some info

>about buying equipment such as HF transceivers, Dual Banders, e.g.

>

>I think I am going to Hong Kong or Singapore, so if you have any addresses,
>or perhaps any prices, it would be very nice.

>

Well a few questions. Does your country have draconian import duties on ham gear and are you using your trip to get around them? Do you know if you'll get those duties anyhow when you return? (you used to in Australia, and possibly still do).

Are you shopping there because the prices will be cheaper? The US has few import duties and I found that I bought some nice stuff in Japan once, to arrive in the US later to find that the prices were cheaper here.

Are you shopping there to get some piece of equipment not available at home? If so make sure you have all the manuals and know what you're going to do when the thing needs servicing at home and the box is not supported by the manufacturer.

I was in Hong Kong in '68 and I couldn't find a piece of ham gear there to save my life. I think Hong Kong is more oriented to higher volume stuff for rich people, like jewelry I suppose.

Joe Mack NA3T
mack@ncifcrf.gov
(Nat Inst Health, Bethesda, MD, USA)

Date: 21 Jun 1994 18:30:56 GMT
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!gatech!concert!inxs.concert.net!
taco.cc.ncsu.edu!straylight.acs.ncsu.edu!nsyslaw@network.ucsd.edu
Subject: You know its time to retire from the hobby when ...
To: info-hams@ucsd.edu

Bob Dillon (bdillon@ADMIN.aurora.edu) wrote:

: After enjoying the privileges of marriage, you tell the XYL, "Gee, hon,
: that was almost as much fun as working a new country."

Actually that's the time to take up more interest in the hobby.
When you're not busy looking for a new XYL (or just housing),
that is ... ;-)

--

| | |
|--|-----------------------|
| Lou Williams (nsyslaw@acs.ncsu.edu) | aka: KE4ARM |
| Unix Systems Programmer | Phone: (919) 515-2794 |
| NCSU Administrative Computing Services | FAX: (919) 515-3787 |

URL: <http://www.acs.ncsu.edu/~nsyslaw>

Date: 20 Jun 94 17:40:20 EDT
From: ihnp4.ucsd.edu!swrinde!gatech!dragon!hayes!bcoleman@network.ucsd.edu
Subject: You know its time to retire from the hobby when....
To: info-hams@ucsd.edu

In article <1994Jun15.223203.20695@kd4dts.atl.ga.us>, jcw@kd4dts.atl.ga.us (John C. Wren) writes:

>
> To get your ham buddies attention (who lives across the street), you yell
> 'CQ! CQ! CQ!' from your driveway...

And your friend responds "QRP station, stand by...."

heh heh heh.

--
Bill Coleman, AA4LR ! Internet: bcoleman@hayes.com
Principal Software Engineer ! AppleLink: D1958
Hayes Microcomputer Products, Inc. ! CIS: 76067,2327
POB 105203 Atlanta, GA 30348 USA !
Disclaimer: "My employer doesn't pay me to have opinions."
Quote: "The same light shines on vineyards that makes deserts." -Steve Hackett.

Date: 21 Jun 1994 16:27:10 GMT
From: ihnp4.ucsd.edu!swrinde!gatech!concert!inxs.concert.net!taco.cc.ncsu.edu!
straylight.acs.ncsu.edu!nsyslaw@network.ucsd.edu
To: info-hams@ucsd.edu

References <CrHt93.AuK@fore.com>, <2tpou0\$epj@cville-srv.wam.umd.edu>,
<16FD8FC62.R0264@vmcms.csuohio.edu>^a
Subject : Re: You know its time to retire from the hobby when....

R0264@vmcms.csuohio.edu wrote:
: In article <2tpou0\$epj@cville-srv.wam.umd.edu>
: ham@wam.umd.edu (Scott Richard Rosenfeld) writes:
:
: >
: >
: >This has really happened to me:
: >
: >You're sitting outside somewhere, and you notice you've been hearing
: >"0 0 0 0 0 0," just a constant string of the letter "0," and
: >for quite some time. Not consciously - it just popped into your

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: >head - and you start to listen to the surroundings...
: >
: >And there's a bird singing "000H 000H 000H," over and over and over...
: >
: >--
: >73,
: >
: >----- The
: > \ / Long Original
: >Scott Rosenfeld Amateur Radio NF3I Burtonsville, MD
: | Live $5.00
: > WAC-CW/SSB WAS DXCC - 125 QSLed on dipoles -----| Dipoles! Antenna!
:
: My printer identifies itself when I power up my computer system, as
: di dah dah dit. Phil Emerson ---- AA8JO.

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Actually, when printing out my budget spreadsheet, I can't help but notice the:

```

di di di dit dah dah dah
di di di dit dah dah dah
di di di dit dah dah dah

```

etc.

coming from the printer. Any coincidence? (It *was* a Christmas present)

--

```

Lou Williams (nsyslaw@acs.ncsu.edu) | aka: KE4ARM
Unix Systems Programmer | Phone: (919) 515-2794
NCSU Administrative Computing Services | FAX: (919) 515-3787

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URL: <http://www.acs.ncsu.edu/~nsyslaw>

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Date: Tue, 21 Jun 1994 15:21:41 GMT
From: ihnp4.ucsd.edu!library.ucla.edu!csulb.edu!csus.edu!netcom.com!
rogjd@network.ucsd.edu
To: info-hams@ucsd.edu

```

```

References <CrLIHz.845@world.std.com>, <ke4dpx.8.00071ACE@gregl.slip.iglou.com>,
<1994Jun20.124616.13790@ke4zv.atl.ga.us>
Subject : Re: IMMEDIATE LICENSING? Bad implementation. Good idea.

```

Gary Coffman (gary@ke4zv.atl.ga.us) wrote:

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: Both of you seem to be working under the assumption that every VE
: team would have to use electronic filing. That's not necessarily the
: case. Obviously, those VE teams who have the capability would be more
: popular among impatient applicants than those who didn't, but that's

```

: the free market at work.

: >On the other hand, I don't see any reason the VECs could not file
: >electronically - for what it's worth.

: It's worth about 2 weeks for the ARRL VEC. All the VE documents have
: to be keypunched into the ARRL computer for verification, then the
: *paper* is forwarded to the FCC where it's keypunched *again*. Any
: time keypunching can be reduced, delays will be reduced. Having the
: VECs submit on disk should drop the delay at the FCC to a couple of
: days, and moving the keypunching out to the VEs should cut the 2 week
: delay at the VEC to a couple of days. Add a week for the US Mail,
: and an application should be processed, and the license mailed and
: received in 2 weeks tops. That's a reasonable turnaround time.

: Gary

: --

I agree that electronic application filing is a super idea, whose time has come. As Gary points out, it should actually ****lower**** the necessary manpower required by the FCC to process licenses. Clearly this is a priority to them, with their budget constraints. And it should greatly speed up applications: everyone wins.

And as Gary observes, not every VE would necessarily have to have the capability. In fact, perhaps the VEC could do the actual electronic communication with the FCC. While each VE session may not have to have a computer, perhaps it isn't too much to expect that each VEC would have the resources to round up a computer and a phone.

Just a thought.....

--

rogjd@netcom.com
Glendale, CA
AB6WR

Date: Tue, 21 Jun 1994 14:38:46 GMT
From: ihnp4.ucsd.edu!swrinde!gatech!kd4nc!ke4zv!gary@network.ucsd.edu
To: info-hams@ucsd.edu

References <2u44fg\$16s@sol.sun.csd.unb.ca>,
<1994Jun20.171318.15876@ke4zv.atl.ga.us>, <2u57ro\$731@agate.berkeley.edu>°
Reply-To : gary@ke4zv.atl.ga.us (Gary Coffman)
Subject : Re: Transmission Line Impedance: Why so many?

In article <2u57ro\$731@agate.berkeley.edu> kennish@kabuki.EECS.Berkeley.EDU (Ken A. Nishimura) writes:

>In article <1994Jun20.171318.15876@ke4zv.atl.ga.us>,

>Gary Coffman <gary@ke4zv.atl.ga.us> wrote:

>>In article <2u44fg\$16s@sol.sun.csd.unb.ca>

>>a4q4@jupiter.sun.csd.unb.ca (D.J.Trynor EE) writes:

>>>It seems that there are so many transmission lines impedances (i.e 50, 75, >>>300 ohms).

>>>Is there a technical reason for this or was it merely a development of >>>different standards?

>>

>>At least for coax, there are technical reasons. 75 ohm *air line* (actually

>>76.708 ohms) has the lowest loss of any impedance coax. If we replace

>>the air with polyethelene, we have 50 ohm cable (actually 51.02 ohms).

>>That's because the ratio of conductor diameters for lowest loss is 3.59112:1

>>in both cases, the dielectric making the difference in surge impedance.

>>

>>Gary

>

>This must be for some preset inner conductor diameter. When I work

>the loss of the coax (assuming perfect dielectric -- loss only due

>to skin effect), I get:

>

>alpha = R/2Zo

>

>where R = (Rs/2pi)*(1/ro + 1/ri)

>and Zo = (sqrt (mu/epsilon)/2pi)*(ln(ro/ri))

>

>So, for a given inner conductor diameter, there will be a specific

>impedance for minimum loss, but I don't see how that ratio holds

>for all sizes. Is my math messed up? Oh, Rs is the skin effect sheet

>resistance.

The following calcs are shamelessly cribbed from a post by Tom Bruhns made back in February.

$$Z_o = 60 * \ln(D/d) / (e^{.5})$$

where

 Zo is characteristic impedance of coaxial line

 D is inner diameter of outer conductor

 d is outer diameter of inner conductor

 e is dielectric constant of insulation

$$A_{100} = 4.34 * R_t / Z_o + 2.78 * f * F_p * (e^{.5})$$

where

A100 is dB attenuation for 100 feet of line
 Rt is total effective resistance at operating freq
 f is operating frequency
 Fp is power factor of dielectric at frequency f
 (and the second term is generally negligible at HF,
 leaving $4.34 \cdot R_t / Z_o$, for practical insulations.
 Dissipation in the insulation favors lower impedance
 since the loss goes down with voltage)

$$R_t = .1 \cdot f^{.5} \cdot (1/d + 1/D)$$

You can reduce this: let $D/d = x$, then

$$A_{100} \cdot D / (7.233E-3 \cdot (e \cdot f)^{.5}) = (x + 1) / \ln(x)$$

For a constant D, e and f, you want to minimize the right side for minimum attenuation. That leads to the D/d mentioned above. Substitute $e=1$ into the Z_o formula for air; $e=2.26$ for polyethelene, and $e=2.10$ for teflon.

So for cables of any given outside diameter, the ratio of 3.59112:1 outer to inner holds for the lowest A100. That gives a roughly 75 ohm impedance for air dielectric and a roughly 50 ohm impedance for poly and teflon.

Gary

--

| | | | | |
|-----------------------------|--|--------------|--|--------------------------|
| Gary Coffman KE4ZV | | You make it, | | gatech!wa4mei!ke4zv!gary |
| Destructive Testing Systems | | we break it. | | uunet!rsiatl!ke4zv!gary |
| 534 Shannon Way | | Guaranteed! | | emory!kd4nc!ke4zv!gary |
| Lawrenceville, GA 30244 | | | | |

End of Info-Hams Digest V94 #689
